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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/731,579	12/06/2000	Terrence J. Riley	2000.045200	9800

23720 7590 03/18/2004

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EXAMINER	
ORTIZ RODRIGUEZ, CARLOS R	
ART UNIT	**PAPER NUMBER**
2125	8

DATE MAILED: 03/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/731,579	TERRENCE RILEY ET AL.	
	Examiner	Art Unit	
	Carlos Ortiz-Rodriguez	2125	

-- Th MAILING DATE of this communication appears on the cover she t with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. Claims 1-2, 5-7, 11-12, 15-17, 21-22, and 25-27 recites the limitation "the at least one characteristic parameter". There is insufficient antecedent basis for this limitation in the claims.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-30 rejected under 35 U.S.C. 102(b) as being anticipated by Tigelaar et al. U.S Patent No. 5,410,162.

Regarding claims 1, 11 and 21 Tigelaar et al. discloses a method comprising: measuring at least one parameter characteristic of processing performed on a workpiece in a processing step (see for example abstract lines 9-14, and col 5 lines 10-15) ; modeling the at least one characteristic parameter measured using a correlation model(curves, see for example col 3 lines 50-52) ; and applying the correlation model to modify the processing performed in the processing step(see for example col 3 lines 43-46).

Regarding claims 2-4,12-14, and 22-24 Tigelaar et al. discloses a method wherein measuring the at least one parameter characteristic of the processing performed on the workpiece in the processing step comprises measuring the at least one parameter characteristic of rapid

thermal processing performed on the workpiece in a rapid thermal processing step(see col 5 lines 10-16).

Regarding claims 5-7, 15-17 and 25-27 Tigelaar et al. discloses a method wherein modeling the at least one characteristic parameter measured using the correlation model comprises modeling the at least one characteristic parameter measured using a wafer electrical test (WET) correlation model(curves, see for example col 3 lines 50-52).

Regarding claims 8-10,18-20, and 28-30 Tigelaar et al. discloses a method wherein applying the wafer electrical test (WET) correlation model to modify the processing performed in the processing step comprises applying the wafer electrical test (WET) correlation model to modify rapid thermal processing performed on the workpiece in a rapid thermal processing step(see for example col 3 lines 43-46 and abstract line 7).

Citation of Pertinent Prior Art

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following patents are cited to further show the state of the art with respect to method for adjusting rapid thermal processing (RTP) recipe setpoints based on wafer electrical test (WET) parameters:

a. U.S. Pat. No. 4,891,499 to Moslehi et al., which discloses method and apparatus for real-time wafer temperature uniformity control and slip-free heating.

b. U.S. Pat. No. 5,029,117 to Patton et al., which discloses method and apparatus for active pyrometer.

c. U.S. Pat. No. 5,226,732 to Nakos et al., which discloses emissivity independent temperature measurement systems.

d. U.S. Pat. No. 5,719,796 to Chen, which discloses system for monitoring and analyzing manufacturing processes using statistical simulation with single step feedback.

e. U.S. Pat. No. 5,761,481 to Kadoch et al., which discloses semiconductor simulator tool for experimental N-channel transistor modeling.

The following publications are cited to further show the state of the art with respect to method for adjusting rapid thermal processing (RTP) recipe setpoints based on wafer electrical test (WET) parameters:

f. Poogyeon et al., "Control Strategy for Temperature Tracking in Rapid Thermal Processing of Semiconductor Wafers", Proceedings of the 31st Conference on Decision and Control; pages 2568-2573.

g. Stuber et al., "Model-based Control of Rapid Thermal Processses", Proceedings of the 33rd Conference on Decision and Control; pages 79-85.

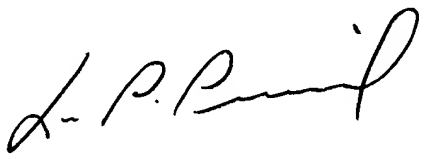
h. Dilhac et al., "Thermal Modeling of a Wafer in a Rapid Thermal Processor", IEEE Transactions on Semiconductor Manufacturing; Vol 8, No.4, November 1995, 432-439.

i. Gyugyi et al., "Control of Rapid Thermal Processing: A System Theoretic Approach", IEEE Transactions on Control Systems Technology; Vol 5, No.6, November 1997, 644-653.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos Ortiz-Rodriguez whose telephone number is (703) 305-8009. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Leo P. Picard can be reached on (703) 308-0538. The central official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.



Carlos Ortiz-Rodriguez
Patent Examiner
Art Unit 2125

LEO PICARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

cror

March 9, 2004